

REMARKS

Claims 1, 3, 5, 7-9, 11, 24, 28, 32, 34-43 and 45-48 are pending. No claims are amended.

Rejections Under 35 U.S.C. §103(a)

All of the claims are rejected over various combinations of references all of which include Brophy et al., U.S. Published Patent Application No. 2004/0220434.

The Brophy et al. reference has a publication date which is after the filing date of this application. Thus, the Brophy et al. reference does not qualify as prior art in a section 103 rejection. Specifically, it is pointed out that the subject matter of the claimed invention and Brophy et al. (US 2004/0220434) were, at the time the claimed invention was made, owned by, or subject to an obligation of assignment to the same person (namely, Velocys Corp.). Therefore, Brophy et al. (US 2004/0220434, which published after applicants' filing date) does not qualify as prior art under section 103. See MPEP 2146 or MPEP 706.02(1)(2)II.

The claims are additionally patentable in view of Applicant's showing of unexpected results. The Examples section of the present specification shows multiple examples of unexpected results achieved by the present invention. For example, in the case of the Knoevenagel Reaction, with a tethered catalyst in a microchannel, applicants observed superior results over both a conventional fixed bed reactor as well as a microreactor with a conventional catalyst. These superior results over both a conventional reactor and a microreactor using a conventional catalyst are surprising over the prior art. In the case of the Heck Reaction, with a tethered catalyst in a microchannel, applicants observed a 17.1% conversion after 3 hours

residence time – when the same reaction was carried out over a tethered catalyst in a batch reactor, the reaction was much slower. This improvement in reaction speed is not suggested in the prior art. Similarly, in the case of the Michael Reaction, with a tethered catalyst in a microchannel, applicants observed surprisingly high yields with short residence times.

Therefore, withdrawal of the section 103 rejections is respectfully requested.

Conclusion

If the Examiner has any questions or would like to speak to Applicants' representative, the Examiner is encouraged to call Applicants' attorney at the number provided below.

Respectfully submitted,

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